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Notice of Allowability	Application No.	Applicant(s)	
	10/678,632	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Kara E. Geisel	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 21 September 2006.
2. ☒ The allowed claim(s) is/are 2,3,5,6 and 9-21.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>1006, 1206</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>1206</u> 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
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DETAILED ACTION

Information Disclosure Statement

The information disclosure statements filed October 17th, 2006 and December 4th, 2006 have been considered by the examiner.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Susan Pan on December 1st, 2006.

The application has been amended as follows:

In regards to claim 9, lines 1-10, this subject matter (originally in claim 1) has been deleted, and the subject matter of claim 7 (from which claim 9 originally depended) has been added in order to include all the limitations that the original claim 9 had, in independent form.

In regards to claim 10, lines 1-10, this subject matter (originally in claim 1) has been deleted, and the subject matter of claim 7 (from which claim 10 originally depended) has been added in order to include all the limitations that the original claim 10 had, in independent form.

The amended claims appear below, along with a clean version of the claims:

9. ~~A light source type discriminating method for discriminating a light source type of a photographic light source, comprising the steps of:~~

~~—providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors;~~

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~~arranging a fourth sensor having a spectral sensitivity that does not overlap said spectral sensitivities corresponding to said three primary colors, said first to fourth sensors constituting an image pickup system; and~~
~~discriminating said light source type of said photographic light source by using information obtained by said first to fourth sensors;~~

An image forming method for reading image data of an input image with an image pickup system and performing predetermined correction on the read image data, comprising the steps of:

providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors and arranging a fourth sensor having a spectral sensitivity that does not overlap the spectral sensitivities corresponding to the three primary colors, said first to fourth sensors constituting said image pickup system;

discriminating a light source type by using information obtained by said first to fourth sensors;

converting a sensor output obtained with the thus discriminated light source type, by using a color conversion method defined by said sensor output obtained with said discriminated light source type and a sensor output obtained with a desired light source type, so that a sensor output value obtained with said desired light source type is obtained, and

obtaining image data of said input image read by said image pickup system using the thus obtained sensor output value; wherein:

said first to third sensors for said three primary colors are respectively a red (R) sensor, a green (G) sensor, and a blue (B) sensor; and when said fourth sensor is assumed to be a sensor X, said fourth sensor X is a sensor whose absorption peak exists between respective absorption peaks of said G sensor and said B sensor and in a region of from 500 nm to 520 nm.

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10. ~~A light source type discriminating method for discriminating a light source type of a photographic light source, comprising the steps of:~~

~~—— providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors;~~

~~arranging a fourth sensor having a spectral sensitivity that does not overlap said spectral sensitivities corresponding to said three primary colors, said first to fourth sensors constituting an image pickup system; and~~

~~—— discriminating said light source type of said photographic light source by using information obtained by said first to fourth sensors;~~

An image forming method for reading image data of an input image with an image pickup system and performing predetermined correction on the read image data, comprising the steps of:

—— providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors and arranging a fourth sensor having a spectral sensitivity that does not overlap the spectral sensitivities corresponding to the three primary colors, said first to fourth sensors constituting said image pickup system;

—— discriminating a light source type by using information obtained by said first to fourth sensors;

—— converting a sensor output obtained with the thus discriminated light source type, by using a color conversion method defined by said sensor output obtained with said discriminated light source type and a sensor output obtained with a desired light source type, so that a sensor output value obtained with said desired light source type is obtained, and

—— obtaining image data of said input image read by said image pickup system using the thus obtained sensor output value; wherein:

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said first to third sensors for said three primary colors are respectively a red (R) sensor, a green (G) sensor, and a blue (B) sensor; and

when said fourth sensor is assumed to be a sensor X, said color conversion method comprises a step of performing correction with respect to a gray portion in said input image or a portion corresponding to the gray portion such that a sensor output E_{ij}^{ZE} (i: pixel position, j: R, G, B, X) corresponding to an estimated light source type becomes a sensor output E_{ij}^{Z0} corresponding to a reference light source.

Clean version of claims:

9. An image forming method for reading image data of an input image with an image pickup system and performing predetermined correction on the read image data, comprising the steps of:

providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors and arranging a fourth sensor having a spectral sensitivity that does not overlap the spectral sensitivities corresponding to the three primary colors, said first to fourth sensors constituting said image pickup system;

discriminating a light source type by using information obtained by said first to fourth sensors;

converting a sensor output obtained with the thus discriminated light source type, by using a color conversion method defined by said sensor output obtained with said discriminated light source type and a sensor output obtained with a desired light source type, so that a sensor output value obtained with said desired light source type is obtained, and

obtaining image data of said input image read by said image pickup system using the thus obtained sensor output value; wherein:

said first to third sensors for said three primary colors are respectively a red (R) sensor, a green (G) sensor, and a blue (B) sensor; and when said fourth sensor is assumed to be a sensor X, said

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fourth sensor X is a sensor whose absorption peak exists between respective absorption peaks of said G sensor and said B sensor and in a region of from 500 nm to 520 nm.

10. An image forming method for reading image data of an input image with an image pickup system and performing predetermined correction on the read image data, comprising the steps of:

providing first to third sensors respectively having spectral sensitivities corresponding to three primary colors and arranging a fourth sensor having a spectral sensitivity that does not overlap the spectral sensitivities corresponding to the three primary colors, said first to fourth sensors constituting said image pickup system;

discriminating a light source type by using information obtained by said first to fourth sensors;

converting a sensor output obtained with the thus discriminated light source type, by using a color conversion method defined by said sensor output obtained with said discriminated light source type and a sensor output obtained with a desired light source type, so that a sensor output value obtained with said desired light source type is obtained, and

obtaining image data of said input image read by said image pickup system using the thus obtained sensor output value; wherein:

said first to third sensors for said three primary colors are respectively a red (R) sensor, a green (G) sensor, and a blue (B) sensor; and

when said fourth sensor is assumed to be a sensor X, said color conversion method comprises a step of performing correction with respect to a gray portion in said input image or a portion corresponding to the gray portion such that a sensor output E_{ij}^{ZE} (i: pixel position, j: R, G, B, X) corresponding to an estimated light source type becomes a sensor output E_{ij}^{Z0} corresponding to a reference light source.

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Examiner's Reasons for Allowance

Claims 2-3, 5-6, and 9-21 are allowed over the prior art of record, for the reasons set forth in the previous Office Action (paper number 0306).

The following is an examiner's statement of reasons for allowance:

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

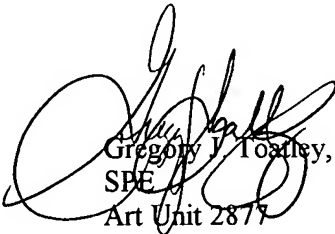
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is 571 272 2416. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571 272 2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Gregory J. Tooley, Jr.
SPE
Art Unit 2877
11 Dec 06

K.G.
KEG
December 1, 2006